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CURRICULUM VITAE

NAME: John Paul Frawley

CURRENT HOME ADDRESS:

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DATE OF BIRTH:

PLACE OF BIRTH: Washington, D.C.

BUSINESS ADDRESS: Health & Environment International, Ltd.
 111 Chestnut Avenue
 Wilmington, Delaware 19809

EDUCATION: Georgetown University B.S. - Chemistry 1948
 Georgetown University M.S. - Biochemistry 1948
 Georgetown University Ph.D. - Biochemistry 1950

PROFESSIONAL EXPERIENCE:

1. President
 Health & Environment International, Ltd.
 Founder and president of consulting firm specializing in strategic management. Principal areas of expertise include risk management, health hazard evaluation, liability assessment, hazard communication, crisis potential evaluation, trial preparation and staff audits. Clients include chemical, pharmaceutical, agricultural chemical and consumer product corporations, legal firms and insurance companies.
2. General Manager, Health and Environment
 Hercules Incorporated
 Wilmington, Delaware 19894
 Dates: September 1982 to May 1989
 World-wide corporate management responsibility for all health and environment matters; corporate responsibility for risk assessment. Responsible for establishing policies, staffing, budgeting, coordinating and managing the activities of the following corporate functions: occupational health, medical, industrial hygiene, toxicology, regulatory compliance, microbiology, environmental affairs, environmental engineering, also corporate audit responsibility for safety and loss prevention. Principal expert witness and corporate spokesman on all health and environmental matters.
3. Chairman, Board of Directors
 Adria Laboratories, Incorporated
 Columbus, Ohio 43216
 Dates: Member, June 1973 to June 1983
 Chairman, November 1981 to June 1983

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PROFESSIONAL EXPERIENCE (continued)

General management and professional responsibility for organizing, staffing and operations of \$100 million pharmaceutical company, jointly owned by Hercules and Montedison.

4. Corporate Director of Toxicology and Regulatory Compliance

Hercules Incorporated
Wilmington, Delaware 19894

Dates: January 1978 to September 1982

World-wide corporate responsibility for evaluation of health and environmental hazards associated with the manufacture and use of Hercules products. Also responsible for assuring compliance with various government regulations concerning potential hazard to health or the environment.

5. Corporate Director of Toxicology

Hercules Incorporated
Wilmington, Delaware 19894

Dates: July 1972 to December 1977

World-wide corporate responsibility for evaluation of health and environmental hazards associated with the manufacture and use of Hercules products.

6. Chief Toxicologist

Hercules Incorporated
Wilmington, Delaware 19899

Dates: December 1956 to July 1972

Responsible for identifying the needs of the Company in the fields of industrial hygiene and product toxicology, arrange and design experimental studies in these fields, put information in the hands of safety managers of plants involved and handle necessary contacts with Government agencies.

7. Assistant Chief, Chronic Toxicity Branch

Food and Drug Administration
Washington, D.C.

Dates: March 1954 to December 1956.

Responsible for conduct of subacute, chronic and carcinogenic toxicological experiments on dyes, organic phosphate insecticides, irradiated food, etc. All work was intended to provide information necessary for safe handling of materials by industrial and agricultural workers, or for safe ingestion by consumers.

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PROFESSIONAL EXPERIENCE (continued)

8. United States Army
- a. Assistant Chief
Biochemistry Department
Army Medical Service Graduate School
- b. Chief of Laboratory
Surgical Research Team of Korea

Dates: February 1952 to March 1954

Conducted studies on the effect of lack of sleep on metabolism of the brain. Established and staffed laboratory at MASH hospital in Korea to investigate the effectiveness of plasma expanders in controlling blood pressure in combat casualties, and to study their metabolism and toxicity.

9. Lecturer in Biochemistry

Georgetown University
Washington, D.C.

Dates: September 1949 to February 1952

Conducted independent course in General Biochemistry in Graduate School.

10. Pharmacologist
- Food and Drug Administration
Washington, D.C.

Dates: July 1948 to February 1952

Conducted investigations on toxicity of synthetic sweetening agents, emulsifiers, chlorinated and organic phosphate insecticides, etc. All work intended to provide information necessary for safe handling of materials by industrial and agricultural workers, or for safe ingestion by consumers.

11. Laboratory Instructor in Chemistry

Georgetown University
Washington, D.C.

Dates: September 1947 to June 1948

Served as laboratory instructor in inorganic and organic chemistry laboratories and assisted in grading examinations in these courses.

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ACCREDITATIONS

Certified in 1981 by American Board of Toxicology
Certified in 1981 by Academy of Toxicological Sciences
Certified in 1960 by American Board of Industrial Hygiene

MEMBERSHIP IN TECHNICAL SOCIETIES

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OTHER ACTIVITIES

Associate Editor of "Regulatory Toxicology and Pharmacology" Journal,
1981-present

President, The Academy of Toxicological Sciences, 1987-1990; Past
President 1990 - present

Chairman, Governing Board, Council for Health and Environmental Safety
of Soil, 1987 to present

Member, U. S. Delegation of the Codex Alimentarius Committee on
Pesticide Residues, 1965 to present

Trustee, Medical Center of Delaware, 1988-present

Member, Agricultural Board of the National Research Council, 1968-1972,
Vice Chairman, 1971-72

Member, Governor's Scientific Advisory Committee for Delaware, 1967-68

Member, Advisory Panel on Interactions, Secretary's Commission of
Pesticides and Their Relationship to Environmental Health (Mrah
Commission), U. S. Department of Health, Education and Welfare, 1969

Member, Advisory Board, Delaware Cancer Network, 1978-81

Member, Professional Standards Evaluation Board (PSEB), Academy of
Toxicological Sciences, 1982 to 1986

AWARDS

Lea Hitchner Award - National Agricultural Chemicals Association - 1968

Arnold J. Lehman Award - Society of Toxicology - 1987

SCIENTIFIC PUBLICATIONS

John P. Frawley, Ph.D.

- 1) An Ultraviolet Spectrophotometric Method for the Quantitative Estimation of Benzene Hexachloride in Milk
Frawley, J. P. and Davidow, B. J.
Assoc. Off. Agric. Chem., 32:758 (1949)
- 2) Rate of Disappearance of the Isomers of Benzene Hexachloride from Fat Deposits in Rats
Frawley, J. P. and Fitzhugh, O. G.
Fed. Proc., 8:292 (1949)
- 3) The Chronic Toxicity of Technical Benzene Hexachloride and Its Alpha, Beta and Gamma Isomers
Fitzhugh, O. G., Nelson, A. A. and Frawley, J. P.
J. Pharm. and Exp. Therap., 100:59 (1950)
- 4) Factors Affecting Tissue Distribution Following Oral Ingestion of Lipid Soluble Substances
Frawley, J. P. and Fitzhugh, O. G.
Fed. Proc., 9:273 (1950)
- 5) Tissue Distribution, Accumulation and Elimination of the Isomers of Benzene Hexachloride
Davidow, B. and Frawley, J. P.
Proc. Soc. Exp. Biol. and Med., 76:780 (1951)
- 6) Rate of Recovery of Plasma, Red Cell and Brain Tissue of Rats Following Cholinesterase Inhibition by Organic Phosphates
Frawley, J. P. and Hagan, E. C.
Fed. Proc., 10:297 (1951)
- 7) Relationship of Blood and Brain Cholinesterase Levels to Acute Oral Toxicities of Some Organic Phosphates
Hagan, E. C. and Frawley, J. P.
Fed. Proc., 10:304 (1951)
- 8) A Comparison of the Chronic Toxicities of Synthetic Sweetening Agents
Fitzhugh, O. G., Nelson, A. A. and Frawley, J. P.
Amer. Pharm. Assoc., So. Ed., 40:583 (1951)
- 9) Effect of Liver Damage on the Toxicity of Octamethyl Pyrophosphoramidate (OMPA)
Frawley, J. P., Laug, E. P. and Fitzhugh, O. G.
Fed. Proc., 11:347 (1952)
- 10) Effect of Emulsifying Agents on the Intestinal Content of the White Rat
Bourke, A. R., Frawley, J. P. and Fitzhugh, O. G.
Fed. Proc., 11:325 (1952)

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- 11) A Comparative Pharmacological and Toxicological Study of Organic Phosphate-Anticholinesterase Compounds
Frawley, J. P., Hagan, E. C. and Fitzhugh, O. G.
J. Pharm. and Exp. Therap., 105:156 (1952)
- 12) A Procedure for the Biological Assay of Insecticides by Oral Administration to Flies
Frawley, J. P., Laug, E. P. and Fitzhugh, O. G.
J. Assoc. Off. Agric. Chem., 35:741 (1952)
- 13) The In Vivo Inhibition of Fly Cholinesterase as a Measure of Microgram Quantities of Organic Phosphate Insecticides
Frawley, J. P., Laug, E. P. and Fitzhugh, O. G.
J. Assoc. Off. Agric. Chem., 35:745 (1952)
- 14) The Fate of Dextran and Modified Gelatin in Casualties with Renal Insufficiency
Howard, J. M., Frawley, J. P., Artz, C., and Sako, Y.
Surg. Gyn. and Obst., 100:207 (1955)
- 15) Plasma Retention and Urinary Excretion of Dextran and Modified Fluid Gelatin in Combat Casualties
Frawley, J. P., Artz, C. P. and Howard, J. M.
Surgery, 37:384 (1955)
- 16) Clinical Observations on the Use of Dextran and Modified Fluid Gelatin in Combat Casualties
Artz, C. P., Howard, J. M. and Frawley, J. P.
Surgery, 37:612 (1955)
- 17) A Study of Plasma Amylase Activity in the Combat Casualty
Howard, J. M., Frawley, J. P. and Artz, C. P.
Annals Surg., 141:337 (1955)
- 18) Muscle Metabolism and Catabolism in Combat Casualties
Frawley, J. P., Howard, J. M. and Artz, C. P.
A.M.A. Arch. Surgery, 71:612 (1955)
- 19) Investigations of Serum Protein Changes in Combat Casualties
Frawley, J. P., Artz, C. P. and Howard, J. M.
A.M.A. Arch. Surgery, 71:605 (1955)
- 20) Studies of Adrenal Function in Combat and Wounded Soldiers
Howard, J. M., Olney J., and Frawley, J. P.
Annals Surgery, 141:314 (1955)

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- 21) Procedures for Appraisal of the Toxicity of Chemicals in Foods, Drugs and Cosmetics, V. Range-Finding and Subacute Toxicity
Frawley, J. P.
Food, Drug and Cosmetic Law Journal, 10:703 (1955)
- 22) Myelin Degeneration in Chickens with Subacute Administration of Organic Phosphorous Insecticides
Frawley, J. P., Zwickey, R. E. and Fuyat, H. N.
Fed. Proc., 15:424 (1956)
- 23) Bestimmung des Dosen-Bereichs und der subakuten Toxizität
Frawley, J. P.
Die Toxische Gesamtsituation Auf Dem Gebiet Der Menschlichen Ernährung (1956)
- 24) Nerve Poisons
Frawley, J. P.
International Record of Medicine, 169:41 (1956)
- 25) The Effect of Low Dietary Levels of Parathion and Systox on Blood Cholinesterase Activity of Dogs
Frawley, J. P. and Fuyat, H. N.
J. Agri. and Food Chem., 5:346 (1957)
- 26) Marked Potentiation in Mammalian Toxicity from the Simultaneous Administration of Two Organic Phosphate Insecticides
Frawley, J. P., Hagan, E. C. and Fuyat, H. N.
J. Pharm. and Exp. Therap., 121:96 (1957)
[Abstract 119:147 (1957)]
- 27) Alteration of Toxicity of Parathion by Ultraviolet Light
Blake, J. R., Frawley, J. P., Cook, J. W. and Fitzhugh, O. G.
Fed. Proc., 16:1207 (1957)
- 28) Blood Cholinesterase Studies with Simultaneous Administration of Several Combinations of Organic Phosphate Insecticides
Williams, M. W., Fuyat, H. N., Frawley, J. P. and Fitzhugh, O. G.
Fed. Proc., 16:1484 (1957)
- 29) The Significance of Potentiation to the Safety of Food Additives
Frawley, J. P.
Food, Drug and Cosmetic Law Journal, 12:767 (1957)
- 30) Modification of the Michel Electrometric Technique for Dog and Rat Blood Cholinesterase
Williams, M. W., Frawley, J. P., Fuyat, H. N. and Blake, J. R.
J. Assoc. Off. Agric. Chemists, 40:1118 (1957)
- 31) Effect of Light on Some of the Chemical and Biological Properties of Parathion
Frawley, J. P., Cook, J. W., Blake, J. R. and Fitzhugh, O. G.
J. Agric. and Food Chem., 6:28 (1958)

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- 32) In Vivo Effects of Paired Combination of Five Organic Phosphate Insecticides
Williams, M. W., Frawley, J. P. and Fitzhugh, O. G.
J. Agric. and Food Chem., 6:514 (1958)
- 33) The Effect of Parathion on Human Red Blood Cell and Plasma Cholinesterase
Williams, M. W., Cook, J. W., Blake, J. R., Jorgenson, P. S. and
Frawley, J. P.
A.M.A. Arch. Ind. Health, 18:441-445 (1958)
- 34) Chronic Oral Toxicities of Four Stearic Acid Emulsifiers
Fitzhugh, O. G., Bourke, A. R., Nelson, A. A. and Frawley, J. P.
Toxic. and Appl. Pharm., 1:315-331 (1959)
- 35) Safe Tolerances for Pesticides in Milk
Frawley, John P.
News and Pesticide Review, 18:6-7 (1959)
- 36) Toxicologist Reacts to Food Law
Frawley, J. P.
Chemical Processing, (March, 1960)
- 37) Corporate Responsibility in Environmental Toxicology
Frawley, J. P.
Hercules Chemist, Number 40, (October, 1960)
- 38) Process of Discovering and Developing a Marketable Pesticide
Frawley, John P.
Entoma, 1961-62
- 39) Toxicologic Investigations on Delnav
Frawley, J. P., Weir, R., Tusing, T., DuBois, K. P. and Calandra, J. C.
Toxicology and Applied Pharmacology, 5:605-624 (1963)
- 40) Statement before the Subcommittee on Re-Organization and International
Organizations of the Senate Committee on Government Operations
Washington, D. C.
October 9, 1963
- 41) Our Sacred Food—A Perspective
(Guest Article)
J. P. Frawley
Information Bulletin of the British Industrial Biological Research Assn.
September (1964) Volume 3, No. 7
- 42) The Chronic Oral Toxicity of Series of Rosin Products
Toxicology and Applied Pharmacology (Abstracted)
John P. Frawley and Joseph C. Calandra
Volume 6, No. 3, May, 1964

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- 43) Studies on the Gastro-intestinal Absorption of Purified Sodium Carboxymethylcellulose
J. P. Frawley, A. K. Wiebe, and E. D. Klug ;and M. V. Shelanski
Food and Cosmetics Toxicology, Volume 2, pp 539-543, November, 1964
- 44) Investigations Establishing the Safety of Rosin Products for Food, Food Packaging Applications
J. P. Frawley
Naval Stores Review, March, 1965
- 45) The Residue of BHT and Metabolites in Tissue and Eggs of Chickens
J. P. Frawley, J. H. Kay and J. C. Calandra
Food and Cosmetics Toxicology, September, 1965
- 46) Progress Report on Multigeneration Reproduction Studies in Rats Fed Butylated Hydroxytoluene (BHT)
J. P. Frawley, J. H. Kay, P. E. Kohn and J. C. Calandra
Food and Cosmetics Toxicology, September, 1965
- 47) (Articles of General Interest)—Our Sacred Food - A Perspective
Food and Cosmetics Toxicology, Volume 3, 1965
- 48) Synergism and Antagonism
(Proc. of the Conference on Research Needs and Approaches to the Use of Agricultural Chemicals from a Public Health Viewpoint, Held at the University of California) Edited by C.O. Chichester, Research in Pesticides 1965, Academic Press, New York
- 49) Quantitative Measurements of Induction of Hepatic Microsomal Enzymes by Various Dietary Levels of DDT and Toxaphene in Rats
P. K. Kinoshita, J. P. Frawley and K. P. DuBois
Toxicology and Applied Pharmacology, Volume 9, pp. 505-513. (1966)
- 50) The Health Significance of Environmental Pollution from Biindobioresoate
J. P. Frawley (Y. Elwarf)
Fd. Cosmet. Tox., Volume 4, pp. 565-566 (1966)
also appeared in
BIBRA Information Bulletin Volume 5, No. 3, pp. 214-215 (1966)
- 51) BIBRA Annual Scientific Meeting - Scientific Evidence and Common Sense as a Basis for Food-Packaging Regulations
J. P. Frawley
Fd. Cosmet. Toxicology, Vol. 5, pp. 293-308 (1967)
- 52) A Reasoned Approach to Regulation Based on Toxicologic Considerations
J. P. Frawley
Food, Drug Cosmetic Law Journal
Vol. 23, No. 5, pp. 260-270 May, 1968

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- 53) Quantitative Measurement of Inhibition of Aliesterases, Acylamidase, and Cholinesterase by EPN and Delnav
Kenneth P. DuBois, Florence K. Kinoshita and John P. Frawley
Toxicology and Applied Pharmacology Vol. 12, No. 2 pp. 273-284, March, 1968
- 54) 10 Years of Food Law - Has it Been Worth the Effort?
A. T. Spiher, Jr., and J. P. Frawley
Modern Packaging, Vol. 41, No. 9 112-125 (September, 1968)
- 55) Guidelines for Estimating Toxicologically Insignificant Levels of Chemicals in Food
Food Protection Committee Report
National Research Council, 1969
- 56) Comparative Inhibition of Aliesterases and Cholinesterase in Rats Fed Eighteen Organophosphorus Insecticides
Mei-Quey Su, Florence K. Kinoshita, J. P. Frawley and Kenneth P. DuBois
Toxicology and Applied Pharmacology, Vol. 20, 241-249 (1971)
- 57) Multigeneration Reproductive Effects of Three Pesticides in Rats
G. L. Kennedy, Jr., J. P. Frawley and J. C. Calandra
Toxicology and Applied Pharmacology, Vol. 25, 589-596 (1973)
- 58) Test Protocols and Limitations for Detection of Neurotoxicity
J. P. Frawley,
Pesticide Delayed Neurotoxicity EPA 600/1-76-025, July 1976.
- 59) Negative Health Implications of the Delaney Philosophy
Conference on Scientific Basis for Interpretation of the Delaney Clause
February 7, 1978, Washington, D.C., In Regulatory Aspects of Carcinogenesis and Food Additives: the Delaney Clause ISBN 0-12-192750-4 pp. 253-260, 1979, Academic Press, Inc., New York, San Francisco, London.
- 60) Techniques for Deriving Realistic Estimates of Pesticide Intakes
Proceedings from the International Union Pure and Applied Chemistry (IUPAC) July 1978, Zurich, Switzerland; Advances in Pesticide Science, Part 3, pp. 696-700, Pergamon Press Oxford and New York 1979
- 61) The 1980's - A Decade of Change
J. P. Frawley
Regulatory Toxicology and Pharmacology, 1:3-7, June 1981
- 62) The Influence of Toluene on the Leachability of TCDD From Soil
J. J. Ford, J. P. Frawley, F. K. Kinoshita and A. S. Hirwe
4th International Symposium on Chlorinated Dioxins and Related Compounds, October 1984, Ottawa, Ontario, Canada
- 63) Codex Alimentarius - Food Safety - Pesticides
J. P. Frawley
Food Drug Cosmetic Law Journal, Vol. 42 No. 2, 168-173 (1987)
- 64) Our Sacred Food -- A Perspective
John P. Frawley
Regulatory Toxicology and Pharmacology 9, 209-211 (1989)

J. P. Frawley [2363v]
Revised 11/6/89

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